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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,342	06/24/2005	Takayuki Matsushima	17155/003001	5910

22511 7590 05/06/2008  
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EXAMINER
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GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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05/06/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@oshaliang.com  
buta@oshaliang.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/505,342	<b>Applicant(s)</b> MATSUSHIMA ET AL.	
	<b>Examiner</b> John L. Goff	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is in response to the amendment filed on 1/18/08. The previous 35 USC 112 rejections have been overcome.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 103***

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP09330947 (See also the machine translation and abstract) in view of JP07082533 (See also the machine translation and abstract) and Isshiki et al. (U.S. Patent 5,872,194).

JP09330947 discloses a method for producing an electrical device comprising arranging an adhesive layer (5 of Figure 1) containing a curable resin and electrically conductive particles (4 of Figure 1) added to the adhesive from the outset on a first electrode (3 of Figure 1) of a first object (7 of Figure 1), arranging an adhesive layer (6 of Figure 1) on a second electrode (2 of

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Figure 1) of a second object (1 of Figure 1), positioning the first and second electrodes of the first and second objects in register with each other, tightly contacting the adhesive layer on the first object with the adhesive layer on the second object, thrusting the first and second objects against each other to interconnect the first and second electrodes via the electrically conductive particles (Figures 2-4), and allowing the curable resin to be polymerized by heating (See Figures 1-4 and the abstract and paragraphs 10-14 of the machine translation). JP09330947 does not teach the adhesive layer arranged on the first electrode contains an epoxy resin and a first curing agent and the adhesive layer arranged on the second electrode contains a second curing agent. However, there is no specific disclosure in JP09330947 of the use of any particular adhesives other than the adhesive include a heat curable resin. JP07082533 discloses an adhesion method for producing an electronic device comprising arranging an adhesive layer containing a heat curable epoxy resin and a first curing agent of a silane coupling agent on a first object to be bonded, arranging an adhesive layer containing a second curing agent on a second object to be bonded, thrusting the first and second objects against each other with the adhesive layer therebetween, and allowing the heat curable epoxy resin to be polymerized by heating (See the abstract and paragraphs 7-13 and the examples of the machine translation), it being noted JP07082533 further teach at least one or both of the adhesive layers may include electrically conductive particles from the outset. JP07082533 teaches the application of the adhesive layers in this manner provides the adhesive with a long shelf life, the adhesive is cured at a low temperature, and the first and second objects are strongly bonded (See paragraphs 4 and 30 and Table 1 of the machine translation). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the adhesive layers arranged on the first and

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second electrodes in JP09330947 the adhesive layers arranged on the first and second objects taught by JP07082533 wherein the adhesive has a long shelf life, the adhesive is cured at a low temperature, and the first and second electrodes are strongly bonded.

JP09330947 and JP07082533 do not specifically teach the second curing agent is mainly composed of a metal chelate. However, JP07082533 is not limited to using any particular curing agent other than suggesting a heat activated latent hardener such as sulfonium salts. It is well taken in art of curing epoxy resins using a curing agent which is a heat activated latent hardener that either one of aluminum chelates or sulfonium salts may be used as shown by Isshiki et al. (Column 6, lines 52-58 and Column 7, lines 32-51). Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the second curing agent in JP09330947 as modified by JP07082533 an aluminum chelate which was a known heat activated latent hardener that is functionally equivalent to sulfonium salt as shown by Isshiki et al.

As to the limitation of “to develop a curing component by reaction of said silane coupling agent as a main component of said first curing agent and one or both of said aluminum chelate and said aluminum alcoholate of the second curing agent and for interconnecting said first and second electrodes through said electrically conductive particles and allowing said thermosetting resin to be polymerized with said curing component”, thrusting and heating the first and second objects against each other as taught by JP09330947 as modified by JP07082533 and Isshiki et al. includes bringing into contact epoxy resin, silane coupling agent, and aluminum chelate wherein doing so is consistent and in agreement with that claimed and disclosed by applicants as resulting in reaction of the silane coupling agent and aluminum chelate to develop a curing component

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which component polymerizes the epoxy resin such that one of ordinary skill would readily expect that taught by JP09330947 as modified by JP07082533 and Isshiki et al. to react the same absent a showing otherwise.

Regarding claims 5 and 6, JP07082533 teaches the silane coupling agent is represented by the claimed formula and includes an alkoxy group and an epoxy ring containing glycidyl group (See paragraphs 6 and 7 of the machine translation).

Regarding claims 7-9, JP07082533 teaches the adhesive layer comprising the second curing agent also includes heat curable epoxy resin and is applied as a coated liquid dispersion (See paragraph 15 and 16 of the machine translation). Further, it appears the coating is applied by spraying (See paragraph 16 of the machine translation). In the event it is shown JP07082533 does not specifically suggest spraying the following rejection would apply. It is considered extremely well known in the art to apply a dispersion by spraying such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the adhesive layer coatings as taught by JP09330947 as modified by JP07082533 and Isshiki et al. using any well known technique in the art such as spraying as only the expected results would be achieved.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP09330947, JP07082533, and Isshiki et al. as applied to claims 1 and 5-9 above, and further in view of either one of Isozaki et al. (U.S. Patent 4,772,672) or JP07011152 (See also the abstract).

JP09330947, JP07082533, and Isshiki et al. as applied above teach all of the limitations in claim 4 except for a specific teaching that the aluminum chelate is one of ethyl acetoacetate aluminum diisopropylate, alkyl acetoacetate aluminum diisopropylate, or aluminum monoacetyl

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acetate bis ethylacetoacetate, it being noted Isshiki et al. are not limited to any particular aluminum chelate. It is well taken in the art that aluminum chelate curing agents include aluminum monoacetyl acetate bis ethylacetoacetate, ethyl acetoacetate aluminum diisopropylate, etc. as shown for example by either one of Isozaki et al. (Column 8, lines 1-62) or JP07011152 (See abstract). Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the aluminum chelate taught by JP09330947 as modified by JP07082533 and Isshiki et al. any of those well taken in the art including aluminum monoacetyl acetate bis ethylacetoacetate, ethyl acetoacetate aluminum diisopropylate, etc. as shown for example by either one of Isozaki et al. or JP07011152.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP09330947, JP07082533, and Isshiki et al. as applied to claims 1 and 5-9 above, and further in view of JP09067427 (See also the abstract).

As noted above, JP07082533 is considered to teach the silane coupling agent is represented by the claimed formula and includes an alkoxy group and an epoxy ring containing glycidyl group (See paragraphs 6 and 7 of the machine translation). In the event it is shown JP07082533 does not necessarily teach the claimed silane coupling agent the following rejection would apply. It is well taken in the art that silane coupling agents having the formula taught by JP07082533 include an alkoxy group and an epoxy ring containing glycidyl group as shown by JP09067427 (See abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the silane coupling agent in JP09330947 as modified by JP07082533 and Isshiki et al. those having the well taken form of including an alkoxy group and an epoxy ring as shown by JP09067427 only the expected results being achieved.

***Response to Arguments***

7. Applicant's arguments with respect to claims 1 and 4-9 have been considered but are moot in view of the new ground(s) of rejection.

Applicants amendment is fully addressed above.

Applicants argue, "Specifically, while the Examiner attempts to cite JP '533 as teaching the claimed adhesive layer (except the aluminum chelate or alcoholate, which the Examiner cites as being taught in Isshiki), Applicant respectfully asserts that nowhere in JP '533 is there a teaching or suggestion that its silane coupling agent is used as a curing agent for generating an active species (cations) including curing initiation properties by interaction with a second curing agent (aluminum chelate or alcoholate, as claimed). Rather, use of the silane coupling agent in JP '533 is simply to produce an improvement in interracial adhesion by contacting the silane coupling agent with the adhesive surface. *See* JP '533, paragraph [0009]. However, as required by claim 1, when the first and second objects are thrust together, the silane coupling agent reacts with one or both of the aluminum chelate and aluminum alcoholate to form a curing component, whereby it is the developed curing component that initiates polymerization of the thermosetting resin. Thus, JP '533 is distinct from the present application in composition, polymerization mechanism, and purpose, and one of ordinary skill in the art would have had no reasonable expectation of success in modifying the references as asserted by the Examiner to arrive at the claimed invention. Moreover, because the silane coupling agent, as taught by JP '533, does not play a role in the polymerization initiation, if the sulfonium salt of JP '533 were substituted with the aluminum chelate of Isshiki, one skilled in the art would also not have a reasonable expectation of success that the silane coupling agent and aluminum compound would react to form a curing component that triggers polymerization."

The Examiner appreciates that JP '533 does not specifically disclose that the silane coupling agent is used as a curing agent for generating an active species (cations) including curing initiation properties by interaction with a second curing agent. However, JP '947 as modified by JP '533 and Isshiki et al. disclose bringing into reaction contact epoxy resin, silane coupling agent, and aluminum chelate wherein doing so is consistent and in agreement with that claimed and disclosed by applicants as resulting in reaction of the silane coupling agent and aluminum chelate to develop a curing component which component polymerizes the epoxy resin



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such that one of ordinary skill would readily expect that taught by JP '947 as modified by JP '533 and Isshiki et al. to react the same absent a showing or convincing argument otherwise which has not been provided.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John L. Goff/  
Primary Examiner, Art Unit 1791